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Amdt. dated 06 June 2007
Reply to Final Office Action of 05 April 2007

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REMARKS

Status of the Application

Claims 1-7were rejected under 35 U.S.C. 101 as being directed to nonstatutory subject matter. Claim 1-4, 6, 8, 9-11 and 13 were rejected under 35 U.S.C. 102(e) as being anticipated by West et al. (US Patent 6,438,493). Claim 5, 7, 12, and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US Patent 6,438,493) in view of Doyle et al. (US Patent 5,504,479). Claims 1, 3, 8 and 10 have been amended. No new subject matter has been added.

35 U.S.C. §101 Rejections

Applicant amended claims 1, 3, 8 and 10 to include the tangible result of having the inferred classes stored with the tangible result of establishing a relationship between the geological classes and downhole log data . Such storage system and method is already clearly shown in Fig. 1 and further described at least in the third paragraph of page 2.

35 U.S.C. §102 Rejections

The applicant respectfully traverses each and every one of the 35 U.S.C. 102(e) rejections because the cited reference does not disclose all of the elements of the independent claims of the present invention.

Regarding claim 1, West et al. does not teach or suggest "a system for inferring geological classes". Reference is made to the arguments presented in the previous response. Further, the examiner's assertion that the "seismic facies" of West are equivalent to the "geological classes" is not supported by any evidence. In fact this interpretation is in contradiction to the specification of West.

The "seismic facies" of the West document are listed in col. 5, lines 17-24 and in Figs. 3B -3F. Seismic facies are derived from the seismic texture which "is a

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quantitative measure of the reflection amplitude, continuity, and internal configuration of reflectors" (col. 4, lines 10-16). West et al. lists a number of examples:

> *"Seismic facies analysis can also be applied within a single reservoir to help constrain a detailed physical-property characterization.... Assuming a relationship between seismic character and physical property can be demonstrated, seismic facies volumes can then be used to predict rock property distribution and condition geological models"* (see West, col. 1, lines 40-49)

It is obvious for the skilled person that the seismic facies of West et al are a characterization according to the response of the rock to acoustic waves and thus can only help to come to geological information. The cited paragraph of West makes clear that without further information ("an assumed relationship") seismic facies cannot be transferred into a geological models or classes. In other words, in his assertions the examiner made a bolder statement than the authors of West.

Further regarding claim 1, West et al. does not teach or suggest using "input data from oilfield wells". This distinction has been already highlighted by the applicant in the previous response. It has now been further clarified by replacing the term "oilfield well input data" by "downhole log data" to remove any ambiguity about the distinction between the data used in the present invention as compared to the seismic data used by West.

Further regarding claim 1, West et al. does not teach or suggest using "class sequencing knowledge".

The examiner explicitly equates "full stack data" as mentioned in West et al. with "class sequencing knowledge". This is plain wrong. Stacking data in seismics is a signal processing method to remove noise by stacking, i.e. overlaying many measurements of the same signal and thus removing noise from the data. Class sequencing knowledge is the knowledge of the geological likely sequence of sediment or other earth layers, see for example the paragraph bridging page 3 and 4 of the specification of the present invention.

The difference between the stacking and class sequence knowledge is thus very clear and can be easily verified from any relevant textbook or internet source. The examiner is invited to look up the term "stack" and the terms "sequence", "sequence boundary" and "sequence stratigraphy" , in the Schlumberger Oilfield glossary at

http://www.glossary.oilfield.slb.com/default.cfm

In summary, West et al does not teach at least the following three elements of the independent claims 1, 3, 8 and 10: "Geological Classes", "downhole log data", and "ntegration of geological class sequencing knowledge". The examiner has interpreted many terms clearly limited in West et al to a seismic characterization method, to read on the present claims, thereby stretching and in at least one instance clearly overstretching the terms as they would be read by a person skilled in the art. The applicant has amended the claim to remove an ambiguity asserted by the examiner.
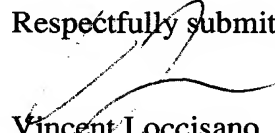
35 U.S.C. §103 Rejections

In light of at least three important elements of the independent claims missing, the applicant further respectfully traverses each and every one of the 35 U.S.C. 103(a) rejections because the cited reference does not disclose all of the elements of the independent claims of the present invention. Furthermore, the arguments as presented in the previous response are fully maintained.

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Conclusion

The applicant believes that the present application that in light of the clarification as to the nature of the input data this application is now in proper condition for allowance. Such allowance is earnestly requested. If the Examiner is contemplating any action other than allowance of all pending claims, the Examiner is urged to contact Applicant's representative, Vincent Loccisano, at (617) 768-2270.

Respectfully submitted,

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